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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/627,446	07/25/2003	Chien-Min Sung	22102	3428

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M. Wayne Western  
THORPE NORTH & WESTERN, LLP  
P.O. Box 1219  
Sandy, UT 84091-1219

EXAMINER

MCDONALD, SHANTESE L

ART UNIT PAPER NUMBER

3723

DATE MAILED: 11/03/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/627,446

Applicant(s)

SUNG, CHIEN-MIN

Examiner

Shantese L. McDonald

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 25 July 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☐ Claim(s) 1-31 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☐ Claim(s) 1-24 and 28-31 is/are rejected.
- 7) ☐ Claim(s) 24-27 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 11/3/03.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-24 and 28-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Buljan et al. in view of Oliver.

Buljan et al. teaches a method of forming a superabrasive wire saw comprising coating diamond or cubic boron nitride superabrasive particles, (col. 3, lines 36-38), with a braze alloy, which contains at least about 1% of a reactive element selected from the group consisting of Al, B, Cr, Li, Mg, Mo, Mn, Nb, Si, Ta, Ti, V, W, Zr, and mixtures thereof, in a molten liquid state, (col. 4, lines 25-32), forming a mixture of coated abrasive particles and organic binder material, which comprises a filler, (col. 10, lines 47-48), over at least a portion of the wire, (col. 5, line 48 – col. 6, lines 15), in a single layer, and curing the coated particles to a wire, selected from the group consisting of steel, tungsten and copper, (col. 2, lines 56-60), the wire having a diameter of from about 0.1mm to about 10 mm, (col. 3, lines 21-22). Buljan et al. also teaches a method of coating the particles, forming a mixture, and curing the binder by a method that is performed continuously as the wire is drawn through a processing area, (col. 7, line 44 – col. 8, line 9), and a method for forming discontinuous segments on the wire, (col. 6, lines 40-42).

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Buljan et al. teaches all the limitations of the claims except for the organic binder being a member selected from the group consisting of epoxy resin, phenolic resin, polyimide resin and mixtures thereof, and the binder securing the superabrasive particles to the metal wire, the coating being from about  $1\mu\text{m}$  to about  $10\mu\text{m}$  in thickness, the coated abrasive particles having a diameter about  $1/5^{\text{th}}$  to about  $1/3^{\text{rd}}$  the diameter of the wire, the organic binder further comprising an organometallic coupling agent, the abrasive particles having an average surface roughness of about  $3\mu\text{m}$  to about  $10\mu\text{m}$ , and at least about 40% of the superabrasive particle surface is wetted by the molten braze alloy. Oliver teaches an organic binder which secures the superabrasive particles to the metal wire, (col. 4, lines 3-8). It would have been obvious to one having ordinary skill in the art to secure the abrasive particles to the wire with an organic binder, as taught by Oliver, in order to more efficiently secure the abrasives to the wire. It would have been further obvious to provide the wire saw of Buljan et al. with an organic binder being a member selected from the group consisting of epoxy resin, phenolic resin, polyimide resin and mixtures thereof, and the organic binder further comprising an organometallic coupling agent, the coating being from about  $1\mu\text{m}$  to about  $10\mu\text{m}$  in thickness, the coated abrasive particles having a diameter about  $1/5^{\text{th}}$  to about  $1/3^{\text{rd}}$  the diameter of the wire, and the abrasive particles having an average surface roughness of about  $3\mu\text{m}$  to about  $10\mu\text{m}$ , and at least about 40% of the superabrasive particle surface is wetted by the molten braze alloy, since it has been that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art, and I have been held to be within the general

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skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice.

***Allowable Subject Matter***

Claims 25-27 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Shiue et al. and Sung were cited to show other examples of coated abrasive tools.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shantese L. McDonald whose telephone number is (703) 308-8722. The examiner can normally be reached on 8:00 a.m. - 4:30 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph Hail can be reached on (703) 308-2687. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

S.L.M.  
October 28, 2004

A handwritten signature in black ink, appearing to read "Joseph J. Hail, III".

Joseph J. Hail, III  
Supervisory Patent Examiner  
Technology Center 3700